INFECTIOUS DISEASE FACT SHEETS

TABLE OF CONTENTS

INFECTIOUS DISEASE FACT SHEETS

Clostridium difficile Diarrheal Disease

What is *Clostridium difficile* (*C. diff.*) diarrheal disease?

Clostridium difficile is a gram-positive spore forming bacterium that produces two exotoxins responsible for the development of gastrointestinal (GI) illness (colitis) generally following administration of antibiotics. Because of the bacterium's ability to form spores, it can persist in the environment for months and is highly resistant to cleaning. It is also called antibiotic associated diarrhea (AAD) and pseudomembranous colitis.

Who gets *Clostridium difficile* diarrheal disease?

Clostridium difficile is common in soil, hay, mud, sand, and the stools of multiple animal species and is an opportunistic pathogen in man. Persons at greatest risk for acquiring this disease include those who require the administration of antibiotics (especially I.V., broad-spectrum antibiotics), have their bowel flora disrupted as a result of enemas or gastrointestinal surgery, are hospitalized (especially in intensive care units), are receiving enteral feedings, or are on drugs that affect the motility of the gastrointestinal tract (e.g.: narcotics, antacids, or laxatives). These conditions change the normal bacterial flora of the bowel allowing *Clostridium difficile* to multiply and cause disease.

What are the symptoms?

Symptoms of *Clostridium difficile* diarrheal disease include: diarrhea (more than three loose stools/day for two or more days), abdominal cramps, low grade fever, abdominal tenderness. Diarrhea is initially green or yellow-brown in color, and in prolonged or serious disease diarrhea becomes bloody.

How soon do symptoms appear?

The period of time from exposure to development of symptoms may be a few days to weeks.

How is *Clostridium difficile* spread?

Spores of *Clostridium difficile* can be acquired from the environment or by fecal-oral transmission (unwashed hands) from colonized or infected individuals (cases as well as persons providing medical care).

How can *Clostridium difficile* be prevented?

Handwashing is the single most important means of preventing transmission of this disease. Persons that soil the environment should be placed in a private room. Body Substance Precautions should be used. Single use of patient care items and good housekeeping practices are also important.

Can *Clostridium difficile* be treated?

Yes, the drug of choice is oral metronidazole (flagyl). If flagyl fails, oral vancomycin should be added to the treatment regimen. If flagyl can not be used, then oral vancomycin should be given alone. **Anti-diarrheal medications should NOT be given.**

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Conjunctivitis
(Pink Eye, Sticky Eye)

What is conjunctivitis?

Conjunctivitis is an infection in the eye. It can be caused by bacteria or viruses.

Who gets conjunctivitis?

Anyone can get conjunctivitis.

How is it spread?

Conjunctivitis is spread when a person comes in contact with discharges from the eye or upper respiratory tracts of infected people. It can be spread by contaminated fingers and articles (towels, wash cloths, multi-dose medication vials, eye makeup).

What are the symptoms of conjunctivitis?

One or both eyes may be red, itchy, painful, and may have drainage. In severe cases, the eyelid will be swollen. Care should be taken to assess the resident for history of allergies.

How long is the person contagious?

From the time of exposure until symptoms occur, usually 24-72 hours. The person can spread the infection to others as long as symptoms are present.

How is conjunctivitis diagnosed?

First an evaluation is made of the signs and symptoms and history of allergy. A culture may be obtained and sent for both bacterial and/or viral analysis.

How do you treat conjunctivitis?

Usually the physician will prescribe eye drops or ointment.

How can conjunctivitis be prevented?

Teach residents good personal hygiene habits. Care must be taken to assure personal items are not shared among residents. Care must also be taken to prevent multi-dose medication vials from becoming contaminated. Ideally, single dose vials are used. As usual, good handwashing and Body Substance Precautions apply. Residents should only be restricted to their room if they have conjunctivitis and poor hygiene habits. If this is the case, the resident should be restricted from participating in activities or going to the dining room only during the course of infection.

For more information about conjunctivitis, ask your physician or health care provider, infection control professional, pharmacist or contact:

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Head Lice Infestation
(Pediculosis)

What are head lice?

Head lice are blood-sucking insects that are found on people's heads. The head louse is found on the hair near the scalp, especially behind the ears and at the nape of the neck.

Who gets head lice?

Anyone, no matter how clean they are, who comes in close contact with someone whom already has head lice.

How are head lice spread?

Head lice can transfer quickly upon head-to-head contact or by way of bug-ridden clothing or personal care items (e.g.: combs, brushes, headwear).

What are the symptoms?

Itching and scratching of the scalp are seen. Person may complain or notice a tickling feeling of something moving in the hair. Sores on the scalp, caused by scratching, may also occur. These sores can sometimes cause a bacterial infection of the scalp.

How soon do symptoms occur?

It may take two to three weeks or longer before the itching is bothersome enough to cause concern.

What do head lice look like?

There are three forms of head lice: the nit, the immature head louse called the nymph and the adult head louse. Nits are head lice eggs that are firmly attached to the hair shaft. They are not to be confused with dandruff or hair spray droplets that can be removed easily by combing or brushing the hair. Live lice are the size of a sesame seed (smaller for the nymph) and color varies with the color of the person's hair.

How long can a person spread head lice?

Head lice can be spread as long as lice or nits remain alive on the infested person or clothing. Adult lice live up to 30 days on a person's head. Off a person, lice die within 2–3 days. Nits that fall off the hair do not hatch at or below room temperature and therefore do not play a major role in spreading head lice.

How is head lice infestation diagnosed?

By looking closely through the hair and scalp for nits or live lice. If lice are not seen, finding nits close to the scalp confirms the diagnosis of head lice. If you are not sure a person has head lice, consult a health care provider, school nurse or public health nurse.

What is the treatment for head lice?

Only those persons with live lice or nits close to the scalp and aged 2 or greater should be treated with a medicated shampoo or cream rinse. Many of these products may be purchased over the counter while others require a prescription. Package instructions must be carefully followed and all require a second application if all nits are not removed from the hair. Use of lindane products is discouraged due to their potential to be toxic.

Remove all nits from the hair. This can be done by picking the nits from the hair using the index finger and thumbnails or by using a special nit comb. If only a few hair follicles remain with nits present, these may be removed by cutting the hair shaft close to the scalp.

All washable clothing and bed linens used by the infested person during the past 2–3 days require washing and drying on the "hot" cycle for at least 20 minutes. Dry clean clothing that is not washable or place clothing in a plastic bag, seal, and store for 14 days.

Wash combs and brushes with soap and hot (130°F) water.

Vacuum floors and upholstered furniture. Use of sprays is not necessary and may be detrimental to those with allergies or asthma.

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Hepatitis A

What is hepatitis A?

Hepatitis A is a liver disease caused by the hepatitis A virus. It was formerly known as infectious hepatitis. It does not cause long term liver damage and usually does not cause death. With hepatitis A there is no chronic carrier state and people who have the disease will then be protected for life.

Who gets hepatitis A?

Anyone can get hepatitis A. Groups of people who are more susceptible to hepatitis A are children and adults between the ages of 15 to 30 years of age. People in these age groups are more socially active, and participate in activities that may involve sharing of food, beverages or other substances. They are also frequently employed in occupations such as food preparation and service, which could provide the opportunity to expose large numbers of people. In the long-term care setting, the employee in food service with hepatitis A can pose the greatest threat to residents and staff.

How is hepatitis A spread?

Hepatitis A is spread through eating or drinking food or beverages that have been contaminated from hands soiled with stool containing the hepatitis A virus. Since very few viral particles are needed to cause infection, visible soilage with stool is not necessary. Institution of proper handwashing procedures and proper disinfection of articles will prevent the spread of hepatitis A.

What are the symptoms of hepatitis A?

The symptoms of hepatitis A may include: tiredness, poor appetite, fever, vomiting, urine may become dark in color, stool may become clay color or jaundice (yellowing of skin and whites of eyes) may occur. Symptoms may be mild and not everyone who has hepatitis A will have all these symptoms.

How soon do symptoms appear?

They may appear within two to seven weeks after someone has been exposed to hepatitis A, but usually it is within four to five weeks.

How is hepatitis A diagnosed?

There is a blood test specific to hepatitis A that can confirm the diagnosis.

How long can the infected person spread the virus?

A person is contagious about two weeks before symptoms appear until about one week after jaundice occurs. If no jaundice is seen, consider the person contagious for two weeks prior to symptoms and two weeks after symptoms occur (4 weeks). Persons with no symptoms can still spread the virus.

How do you treat hepatitis A?

There are no medications for hepatitis A. The best treatment is rest and good nutrition. Drugs and alcohol should be avoided.

How can hepatitis A be prevented?

The best prevention is good handwashing after using the restroom. Staff caring for residents should use Body Substance Precautions and good handwashing. Equipment taken from resident to resident should be properly disinfected. Utensils used for food preparation should be properly sanitized. Staff working in the food preparation should be evaluated for and symptoms indicative of hepatitis A.

Hepatitis A vaccine is available and should be considered by the facility as part of their employee health policies.

For more information about hepatitis A, ask your physician or health care provider, infection control professional, pharmacist or contact:

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Hepatitis B

What is hepatitis B?

Hepatitis B is a liver disease caused by the hepatitis B virus. It was formerly called serum hepatitis.

Who gets hepatitis B?

Anyone can get hepatitis B, but persons at greatest risk include:

- Babies born to mothers who carry the virus
- Drug users who share needles
- Health care workers who come in contact with infected blood or body fluids which contain the virus
- Persons with multiple sex partners
- Hemodialysis patients
- Persons who receive unscreened blood products
- Household contacts and sexual partners of infected persons or carriers of hepatitis B
- Persons living in areas such as Asia or Africa where hepatitis B is common
- Persons in the U.S. who are Alaskan Natives or Pacific Islanders.

How do people get this virus?

The virus of hepatitis B may be found in blood and in lesser amounts in saliva, semen and other body fluids of people who are infected or carry the virus. It is spread from one person to another by sharing any of these body fluids through sharing of needles, needle stick injury, mucous membrane exposure, human bite or sexual contact. It is not spread by casual contact.

What are the symptoms of hepatitis B?

Like hepatitis A, some people may have no symptoms, a few symptoms or severe symptoms. The symptoms may be loss of appetite, tiredness, fever, vomiting, joint pain, hives or a rash. In more severe cases, the urine will turn a dark color, stool will turn a light (clay) color and the person will become jaundiced (a yellowing of the skin and whites of the eyes).

How soon do symptoms appear?

Symptoms can appear anywhere between 45 and 180 days after exposure, with the average being 60-90 days.

How is hepatitis B diagnosed?

A blood test can be performed which is specific for hepatitis B.

How long is the person contagious?

Hepatitis B virus can be present for several weeks before symptoms appear and several months after symptoms appear. About 10% of people who get hepatitis B will become carriers and will always have the virus in their body fluids and can then transmit it to others in the ways identified above.

What is the treatment for hepatitis B?

There is no specific treatment for hepatitis B. Like hepatitis A, good nutrition and rest are very important. If someone becomes a carrier of hepatitis B, they may benefit from alpha-interferon.

How can hepatitis B be prevented?

Hepatitis B vaccine is available and is a safe vaccine that provides protection to about 90% of those who receive it. It is given in three injections at 0, 1 and 6 months. A special hepatitis B immune globulin (HBIG) is also available for persons who are exposed and have not been vaccinated.

In the long-term care setting as with any health care setting, all staff should practice Body Substance Precautions. Care should be taken when handling any sharp object used on the resident. Care should also be taken to assure that personal items (razor, toothbrush) are not shared between residents. The resident who is either infected or is a carrier of hepatitis B may participate in activities and eat in the dining room.

For more information about hepatitis B, ask your physician or health care provider, infection control professional, pharmacist or contact:

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Hepatitis C

What is hepatitis C?

Hepatitis C is an inflammation of the liver that is caused by the hepatitis C virus. This inflammation can result in serious liver damage. Eighty-five percent of hepatitis C-infected individuals develop chronic hepatitis. Hepatitis C is now the major reason for liver transplantation in the United States.

How common is hepatitis C?

Annually, approximately 30,000 Americans will become infected with hepatitis C in the United States. If the body does not clear the virus in six months, the infection is said to be chronic. Currently, an estimated 4 million people have chronic hepatitis C in the United States. Missouri is estimated to have 95,000 persons infected with hepatitis C.

Each year, up to 8,000 Americans die from complications of hepatitis C. The death rate is expected to triple within the next 10 to 20 years, exceeding the death rate associated with AIDS.

Who is at risk for hepatitis C?

Hepatitis C is transmitted primarily by direct puncture of the skin. Injection drug use accounts for greater than 60% of chronic infections.

Other risks include:

- Blood transfusion prior to 1992
- Hemodialysis patients
- Practicing high-risk sexual activity (multiple partners history of STDs, co-infected with HIV)
- Using non-injection illegal drugs (intranasal cocaine)
- Occupational exposure (health care workers)
- Tattooing and body piercing with contaminated equipment

Transmission between mother and baby has been documented, although the risk is low, no more than 6%. Breastfeeding does not appear to transmit hepatitis C.

What are the symptoms?

Some people have loss of appetite, tiredness, nausea and vomiting, vague stomach pain and jaundice (a yellowing of the skin and whites of the eyes). Some people do not have any symptoms.

How soon do symptoms occur?

Symptoms may occur from two weeks to six months after exposure but usually within 6-9 weeks. These symptoms are during the acute phase of the disease. Liver cirrhosis and permanent liver damage from hepatitis C may not be evident for up to 20 years after the initial exposure to the virus.

When and for how long is a person able to spread hepatitis C?

A person with hepatitis C is contagious one or two weeks before symptoms appear and during the entire time the person is ill. About 50% of the people with hepatitis C will go on to become chronic carriers. Until more is learned about this disease, all persons who have been diagnosed as having hepatitis C should be considered infectious (able to pass the hepatitis C virus through their blood and body fluids).

What are the complications of hepatitis C?

Eighty-five percent (85%) of persons infected with hepatitis C develop chronic hepatitis and remain infectious to other people. Cirrhosis (scarring of the liver) occurs within 2 years of the onset of infection in at least 20% of persons with chronic hepatitis C. The risk for chronically infected persons to develop liver cancer is 1-5%. The course of illness is influenced by various factors, especially alcohol consumption.

Can hepatitis C be prevented?

There is no vaccine for hepatitis C. A healthy lifestyle can reduce chances of infection. Avoid illegal injection drug use, intranasal cocaine use and activities that involve contact with other people's blood. Practice safe sex and limit sexual partners (a monogamous relationship has the lowest risk for acquiring hepatitis C). Avoid sharing razors, toothbrushes, pierced earrings, needles and syringes with anyone; and make certain needles for body piercing and tattooing have been properly sterilized.

How is hepatitis C diagnosed?

There are tests that can be performed on blood to identify individuals who have the hepatitis C virus. Your doctor can perform these tests.

Is there a medical treatment for hepatitis C?

Treatment for hepatitis C is recommended only in a selected group of infected persons. Vaccination against hepatitis A and B is recommended, since a liver compromised by hepatitis C is more susceptible to hepatitis A and B.

For more information about hepatitis C, ask your physician or health care provider, infection control professional, pharmacist or contact:

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Influenza

What is influenza?

Influenza is a highly contagious respiratory illness caused by a virus. There are two main types of influenza viruses: type A and type B. Each type has many different subtypes or strains. Influenza, type A, causes moderate to severe illness. Type B causes milder disease and primarily affects children. Influenza can occur throughout the year, but seasonally peaks from December to March.

What are the symptoms?

Symptoms include fever, headache, muscle aches, malaise, sore throat, runny nose, cough and nasal congestion. Occasionally, intestinal symptoms such as nausea, vomiting, diarrhea, and abdominal pain are present, but should not be confused with the "stomach flu."

How is influenza spread?

Influenza is spread from person to person by direct contact with aerosolized particles or large droplets from the respiratory tract of the infected person when coughing, sneezing, or talking. Transmission can also occur through articles recently contaminated by respiratory secretions of the infected person. Frequent handwashing and avoiding or limiting contact with an infected person may reduce the risk of infection.

How soon do symptoms appear?

Symptoms of influenza usually appear 1 to 5 days after exposure.

How long can a person spread influenza?

Persons are most contagious during the 24 hours before symptoms appear and may be contagious for up to 7 days.

How is influenza diagnosed?

The diagnosis of influenza is usually based on the symptoms. For a laboratory-confirmed diagnosis, the virus should be cultured from the throat or nose within three days of onset of symptoms.

What is the treatment?

Basic treatment includes bed rest, fluids, and over-the-counter medications for the relief of symptoms of runny nose, cough, sore throat, fever and discomfort. Aspirin should not be used for infants, children, or teenagers because of the associated risk for contracting Reye Syndrome.

Antiviral medications, such as amantadine and rimantadine, may reduce the severity and shorten the duration of influenza, type A illness in healthy adults when administered with 48 hours of illness onset. These drugs can have side effects and must be ordered by your physician.

How serious is influenza?

Influenza can be very serious, especially during epidemics. Secondary bacterial pneumonia is a serious complication of influenza and can cause death in persons at increased risk for complications, including the elderly and those with chronic diseases.

Can influenza be prevented?

Annual influenza vaccine immunization has been up to 90% effective in preventing influenza in young healthy adults and while only 30% to 40% effective in preventing illness among frail elderly persons, it is 80% effective in preventing influenza-related deaths in the elderly. During community outbreaks of influenza, type A, antiviral

medications may be used by persons who are unable to take the influenza vaccine. Antiviral medications are also indicated when outbreaks are caused by a variant strain of influenza, type A, that might not be controlled by the vaccine.

When is the influenza vaccine given?

Influenza vaccine is updated annually to match the circulating strain and provides immunity for approximately one year. The vaccine should be taken each fall, between October and mid-November. It takes about 1 to 2 weeks for the antibody to develop and provide protection. Special split-virus influenza vaccine should be administered to children 6 months to 12 years. Children less than 9 years of age receiving influenza vaccine for the first time should receive two doses administered at least 1 month apart.

How safe is influenza vaccine?

The influenza vaccine does not contain live viruses, so it cannot cause influenza. The most common reaction is soreness where the shot was given. Fever, chills, malaise, and muscle soreness, lasting 1 to 2 days, occurs in less than 1% of vaccine recipients.

Who should get influenza vaccine?

Persons who have a greater risk for developing complications from influenza should be vaccinated, including:

- Persons aged 65 years and older;
- Residents of long term care facilities and other chronic care facilities;
- Adults and children with chronic heart or lung conditions, including children with asthma;
- Adults and children who require regular medical follow-up because of chronic metabolic disease (including diabetes mellitus), kidney disease, blood disorders or immunosuppression;
- Children and teenagers, aged 6 months to 18 years, who are receiving long-term aspirin therapy and might be at risk for developing Reye syndrome after influenza;
- Women who will be in the second or third trimester of pregnancy during the influenza season.

Other persons who should be vaccinated include:

- Persons who live with or care for high-risk individuals;
- Health care workers, physicians, staff and volunteers of health care facilities and home health facilities;
- Persons who work in public-safety occupations, such as, police, firefighter, and emergency medical technicians;
- College and university students and travelers to foreign counties;
- Persons who wish to avoid influenza illness.

Who should NOT get influenza vaccine?

Persons who:

- Have had a severe allergic reaction to a vaccine component or following a prior dose;
- Have severe reactions, such as hives or swelling of the lips or tongue, after eating eggs because the vaccine is prepared from influenza viruses grown in eggs;
- Have a fever;
- Have an active infection.

For more information about influenza, ask your physician or health care provider, infection control professional, pharmacist or contact:

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Methicillin-Resistant *Staphylococcus aureus* (MRSA)

What is MRSA?

This is the scientific name for a specific type of common bacteria (*Staphylococcus aureus*) that has become "resistant" to or is no longer treatable by a group of commonly used antibiotics (e.g.: methicillin/oxicillin/other penicillin-like drugs).

Why and how do bacteria change so antibiotics no longer work?

Some bacteria already come equipped with the ability to resist the effects of certain antibiotics. Other types of bacteria can acquire the resistant capability from these bacteria. Other types of bacteria get used to living in the presence of antibiotics when antibiotics are taken often, taken when not needed or taken in wrong dosages. The proper use of antibiotics is essential in preventing the emergence and number of resistant organisms.

How harmful is MRSA?

MRSA is not more harmful than methicillin-sensitive *Staphylococcus aureus*. It is more difficult to treat due to usual antibiotics being ineffective. MRSA infections are usually treated with stronger and more expensive antibiotics.

How do you get MRSA?

Many persons already have MRSA due to the previous use of antibiotics. When MRSA is present and causing no harm, a person is "colonized" with the organism. It is when this organism invades the blood, a wound, or other sterile body site, that it causes harm (infection).

It may also be acquired within institutions where antibiotics are either given to the individual or are heavily used by others.

Hands are the most likely means of transmission of MRSA from one person to another. Transmission requires direct contact with a person either colonized or infected with MRSA. Although MRSA has been isolated from environmental items, the environment is NOT an effective mode of transmission.

Should an MRSA colonized or infected person be denied admission to a facility?

There is no reason to deny admission of a person colonized or infected with MRSA since there may be many residents currently in the facility with unknown MRSA colonization of the skin, nares, urine, feces, or sputum.

What can and should be done to limit the spread of MRSA?

HANDWASHING is the single most effective means of preventing MRSA transmission. When appropriate, gloves, gowns, masks, and protective eyewear are used as barriers to prevent acquisition and transmission of the organism.

Persons should only take an antibiotic when a bacterial infection has been diagnosed. In addition, it is important the antibiotic is taken as prescribed with all pills taken. If side effects become a problem, the health care provider should be contacted so the dosage can be changed or an alternate antibiotic prescribed.

What determines whether a resident with MRSA can leave his/her room and participate in social activities?

Each resident should be assessed as to his/her potential for spreading MRSA. A colonized or infected resident, whose wound drainage can be contained in a dressing (if applicable), is not physically ill with fever AND is compliant in following handwashing instructions and instructions not to touch the colonized or infected site, may participate in nursing home activities and eat in the dining hall.

Can a resident use the tub or whirlpool if they have MRSA?

Residents, regardless of colonization or infection with MRSA or any other organism, can take a tub bath or use the whirlpool. Effective cleaning and disinfection of the tub or whirlpool must take place following usage.

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Scabies

What is scabies?

Scabies is a highly communicable skin disease caused by tiny human mites that burrow under the skin to lay eggs. Scabies causes intense itching, and a red, generally raised skin rash. Itching is most intense at night. The rash can start anywhere on the body (generally the face is spared) and continues to spread over the body until appropriately treated.

Who gets scabies?

Anyone can get scabies. Scabies affects all persons regardless of economic status, color of skin, age, or standard of personal hygiene.

How is scabies spread?

Scabies are most commonly passed from one infested person to another through direct skin to skin contact. Occasionally, scabies has been transferred from undergarments, bedclothes, bedding or other articles having skin contact with an infested person.

What are the symptoms?

Itching and scratching, especially at night. The rash can look like many other skin problems (eczema, dermatitis, poison ivy or oak, even chicken pox). Sometimes secondary bacterial infections occur as a result of the constant scratching that leads to bleeding and/or abraded skin that allows entry of disease producing organisms.

How soon do symptoms appear?

For persons getting scabies for the first time, itching and the rash can take up to eight (8) weeks to appear. Normal range is 2–6 weeks.

For a person who gets reinfested with scabies, itching and rash will occur within one to four days.

How long can a person spread scabies?

The scabies mite can be transferred once an infested person has skin-to-skin contact with another person. Therefore, persons who are yet to show symptoms can transfer the mite prior to their knowledge of having scabies. This is why outbreaks of scabies can occur within institutions like long term care facilities.

How is scabies diagnosed?

Because the rash caused by scabies can look like many other types of rashes, diagnosis is important and easily achieved by performing skin scrapings. A nurse may perform this procedure without a doctor's order, as it is a noninvasive procedure**.** See the Department of Health's "Guidelines for Scabies Prevention and Control" (Appendix J.) for how to perform skin scrapings. Once one resident or employee is found to have scabies, it is important to check all residents who may have had skin-to-skin contact with the infested individual, for skin rashes, and to complete a questionnaire for all employees, again who may have had contact with the affected resident or employee, to learn of possible rashes. For employees, rash will generally be noted on the inner aspects of the arms or on the abdomen. (Due to the lifting and turning of residents)

What is the treatment for scabies?

A medicated lotion or cream, known as a "scabicide," which must be prescribed by a physician, is required to effectively treat a person with scabies. This lotion or cream must cover the entire surface of the skin (generally from the tips of the earlobes to the ends of one's toes). A second, and sometimes a third, application may be necessary to adequately treat a person. Scabicides are pesticides and must be used with caution. Products containing topical five percent permethrin are considered safer than products containing lindane.

When only one resident is found to have a rash caused by scabies, only this person and his/her roommate require treatment. The person and/or persons should be isolated during the treatment period and gowns and gloves should be worn for applying the scabicide and for any skin-to-skin or bedside contact. Environmental cleaning and laundering of bed linens, bed clothes, and clothes worn in the past three days also must occur with clean clothes donned following the post-treatment shower/bath. Refer to the Department of Health's "Guidelines for Scabies Prevention and Control" (Appendix J.).

When more than one resident and/or employee are found to have scabies, than all persons having skin-to-skin contact with either infested person requires treatment. This is called mass treatment and may involve one wing or hall or the entire facility depending on the location of the symptomatic individuals. Mass treatment protocols require planning. Refer to the Department of Health's "Guidelines for Scabies Prevention and Control" (Appendix J.).

Do I need to treat furniture, other household items?

Vacuuming of upholstered furniture and rugs is recommended. It is not necessary to clean walls or curtains.

Laundering of bed linens and bedclothes is very important and must be done following treatment of the infested person and/or prior to reuse by anyone.

For items that cannot be washed, either dry clean, place in a hot dryer for 20 minutes, or place in a plastic bag and seal for 10 days.

Following treatment will itching cease?

Itching may continue for two or more weeks following treatment. Scabicides are very drying to the skin plus the body must absorb eggs and fecal pellets left under the skin by the scabies mites. Application of skin lotions and bath oils aid in minimizing dry skin. What will be noted is improvement of the rash (drying up and going away) and absence of new rash.

Recommendations for long term care facilities:

- Screen all new admissions for skin rashes. If present, isolate individual until rash has been diagnosed, and if communicable, adequately treated.
- When rashes appear, consider scabies. Do a skin scraping to rule out or confirm scabies.
- Read and know the "Guidelines for Scabies Prevention and Control" provided by the Section of Communicable Disease Control and Veterinary Public Health, Missouri Department of Health.
- Call you local public health agency or the Missouri Department of Health for assistance.
- All outbreaks are reportable. Report to your local public health agency, district office or Missouri Department of Health.

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Shingles
(Herpes Zoster)

What are shingles?

Shingles is a latent viral disease that occurs as a result of having had chickenpox at an earlier age. Following infection with chickenpox, the virus lies dormant in the body, generally along a nerve root, and is reactivated when host defense mechanisms wean either due to age or disease.

What are the symptoms?

Shingles are generally characterized by the appearance of grouped vesicular lesions that appear along one to three nerve paths, usually on one side of the body, with mild to severe pain. The two most common symptoms reported are severe pain and/or itching.

How soon do symptoms occur?

Highly variable, from months to years, after having chickenpox. Shingles is a reactivation of chickenpox.

Can shingles be spread?

No. In order to get shingles, one must have had chickenpox. However, direct contact with lesion secretions by someone who has never been vaccinated for or had chickenpox, can result in virus acquisition and subsequent chickenpox infection. Restriction of contact by caregivers who have not had chickenpox is appropriate in any setting.

Can shingles be treated?

Antiviral medications (Virarabine, acyclovir or famciclovir) are available and effective in treating herpes zoster. Often the duration of symptoms, including pain, are shortened with antiviral therapy.

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272

INFECTIOUS DISEASE FACT SHEETS

Tuberculosis

What is tuberculosis?

Tuberculosis is a disease caused by a bacterium called *Mycobacterium tuberculosis*. This bacterium can cause disease anywhere in the body, but is of most concern for transmission when found in the lungs.

Who gets tuberculosis?

Anyone can get tuberculosis if they are exposed to someone who has it in their lungs and is coughing, sneezing or singing. Risk for transmission is greatest in small enclosed areas. Even though persons of any age can get tuberculosis, certain groups of people are considered to be at greater risk. These groups include: babies and very young children, persons who are HIV positive or persons with weak immune systems, especially if they have the following conditions: substance abuse, diabetes mellitus, silicosis, cancer of the head or neck, leukemia or Hodgkin's disease, severe kidney disease, low body weight or certain medical treatments (such as steroid therapy or organ transplants). Other persons who may be at higher risk of developing tuberculosis due to potential exposure include: persons who have spent time with a person who is infectious with tuberculosis, persons who are HIV positive, persons who inject drugs, persons from countries where tuberculosis is commonly seen (Latin America, Caribbean, Africa and Asia, except Japan) and persons who live somewhere in the United States where tuberculosis can be common (e.g.: homeless shelters, migrant farm camps).

What are the symptoms of tuberculosis?

The symptoms which may indicate a person has tuberculosis include: weight loss, fever, night sweats, a bad cough which lasts 2 weeks or longer, coughing up blood, or pain in the chest. If these symptoms are present, the patient should be evaluated for tuberculosis.

How soon do symptoms occur?

The time between exposure and the development of symptoms can be weeks to years. Typically, if one has an exposure and gets the tuberculosis germ in their body, their tuberculin skin test (PPD) will turn positive in 4–12 weeks. Only about 10% of persons who have a positive PPD will ever have symptoms of tuberculosis, and this could be years later.

How is tuberculosis spread?

Tuberculosis is spread via the air. Airborne droplet nuclei are expelled into the air when an infected person coughs, sneezes, sings and talks.

How is tuberculosis diagnosed?

The first step in diagnosis involves a tuberculin skin test using the intradermal PPD (Mantoux Test). A complete history with particular attention to signs and symptoms of tuberculosis is essential. A chest x-ray will help visualize the lungs to look for any active disease. Sputum may be sent to the laboratory for Acid Fast Bacillus (AFB) smear and culture.

What is the treatment for tuberculosis?

If a person is infectious with tuberculosis, they should be initially treated with four anti-tuberculosis drugs. These drugs include: Isoniazid (INH), Pyrazinamide, Ethanbutol, and Streptomycin or alternates if allergies are present. Continued choice of therapy will be determined based upon resistance of the tuberculosis germ identified from the patient.

What isolation measures are needed for tuberculosis?

In the long term care setting, the patient with active tuberculosis will need to be placed in a negative pressure isolation room on AFB precautions until tuberculosis is either ruled out or the patient is no longer infectious. Since most long term care facilities do not have negative pressure rooms, the patient should be transferred to an acute care hospital for isolation.

What follow-up is needed for someone exposed to a person with tuberculosis?

If someone is exposed to a person with active tuberculosis, they should be evaluated for tuberculosis via a tuberculin skin test (PPD) at the time of exposure and again 10–12 weeks later. If a person has previously tested positive for tuberculosis via the PPD skin-test, review for signs and symptoms of tuberculosis and obtain a chest x-ray. Contact your local public health agency for guidance in tuberculosis follow-up.

Missouri Department of Health
Section of Vaccine-Preventable and Tuberculosis Disease Elimination
Ph: (800) 611-2912

INFECTIOUS DISEASE FACT SHEETS

Vancomycin-Resistant Enterococci (VRE)

What are enterococci?

Enterococci are bacteria that are normally found in the bowel and vagina of humans. When these bacteria get outside of these areas, they may cause urinary tract infections, wound infections or bloodstream infections. Enterococci are now the third most common cause of infections in hospitalized patients. These bacteria are often difficult to treat with antibiotics. However, one antibiotic that is normally effective is known as vancomycin.

How dangerous are enterococci?

They are fairly mild bacteria. Usually, they do not make healthy people sick. They can cause disease when people are very ill, like when the walls inside the bowel are damaged or when persons have devices such as catheters placed inside their bladders. Although infections with this bacteria usually clear up on their own without treatment, vancomycin-resistant enterococci cause special concern because the types of antibiotics available for treatment are limited. Many of these infections are often not treatable with the antibiotics that we have.

What are vancomycin-resistant enterococci (VRE)?

Vancomycin-resistant enterococci (VRE) are enterococci that can no longer be treated with vancomycin. This is primarily due to the high use of antibiotics. VRE now join the list of other bacteria that are difficult to treat with antibiotics.

Who gets ill with VRE?

Enterococci normally live in the bowel and genital tract. Therefore, most people have these bacteria inside of them without being ill. Those most likely to become ill with VRE are people who:

- Are older
- Have long hospital stays, especially in an intensive care unit
- Were hospitalized in the past
- Have taken antibiotics in the past
- Had prior surgery
- Have had medical devices such as urinary catheters

How is VRE passed from person to person?

These bacteria go from person to person on unwashed hands or objects. They are not carried in the air.

What can and should be done to limit the spread of VRE?

The most important control measure is good handwashing and personal cleaning habits. All care providers should routinely wash their hands before and after patient care and any time they are soiled.

Since these bacteria live in the bowel, they are found in human feces, but they may be carried in any human body fluid. Handwashing and wearing gloves should be a regular habit any time it is likely that hands will be soiled with these fluids. A gown or apron should be worn when it is likely that clothes will be soiled with another person's body fluids. Because these bacteria can be present in people without signs and symptoms of infection, it makes little sense to take “extra” precautions simply because the organism has been identified. In health care settings, the use of common sense precautions such as good handwashing and the proper use of barriers such as gloves and aprons has been found to work as well as more restrictive isolation systems.

What about cleaning and disinfection of the environment?

Since bacteria such as VRE may be passed on medical devices, methods for cleaning these devices should be in writing and should be followed. These bacteria have been found on surfaces in care areas. Although no special cleaning agents are necessary to remove them, good cleaning of surfaces in all patient care areas is important. Cleaning methods should emphasize “elbow grease”.

Why do bacteria change so the antibiotics no longer work?

Some bacteria can naturally resist the effects of antibiotics. Other types of bacteria get used to living in the presence of antibiotics when antibiotics are taken often, taken when not needed or taken in the wrong doses. Later, when antibiotics are needed, the drug no longer kills these bacteria. Proper use can increase the length of time an antibiotic is useful. It is important that the public and the health care community do all they can to assure that antibiotics are ordered and used in a correct manner. Here are a few tips to increase the time that antibiotics remain effective:

- Do not pressure your doctor to prescribe antibiotics.
- Do not give your antibiotics to other people.
- Do not take antibiotics that have been sitting around the house unless prescribed by your doctor for a current illness.

Summary

1. An infection caused by bacteria that is difficult to treat with antibiotics (such as VRE) is no different than an infection caused by other bacteria, except that treatment options are limited.
2. The same infection control measures used to prevent the spread of all bacteria that can cause disease should be used to prevent the spread of bacteria like VRE.
3. The best way to prevent disease transmission is for clients and caregivers to follow good handwashing techniques and to use barriers such as gloves when soiling of the hands is likely. Other barriers such as gowns or aprons should be worn when soiling of clothing is likely.
4. Consistent and proper cleaning of surfaces like tabletops and medical devices is also important in removing these bacteria.

For more information about VRE or use of antibiotics, ask your physician or health care provider, infection control professional, pharmacist or contact:

Missouri Department of Health
Section of Communicable Disease Control and Veterinary Public Health
Ph: (573) 751-6113 or (800) 392-0272